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Motivated Taste Change For Diet Coke

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Fifty heavy drinkers of sugared cola refrained from drinking that beverage for two weeks, instead consuming daily servings of Diet Coke. Participants were prescreened on their level of concern about the effects of sugared soda on their health, with half expressing high concern and half expressing low concern. For both high and low concern participants, blind taste tests revealed a marked increase in liking of Diet Coke over the two week period. In non-blind taste tests however, only high concern participants reported increased liking of Diet Coke, suggesting that awareness of taste change may be facilitated by appropriate motivation. (99 words)

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SYMPOSIA SUMMARY

The Best Offense is a Good Defense: Consumers' Defense-Motivated Strategies and their Effects on Memory, Choice, Preferences and Tastes

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SESSION OVERVIEW

In what ways are people strategic about maintaining their ability to recall previous special memories? Which are the psychological processes driving consumers' choice-motivated shifts in their preferences for product features? What role does motivation play in one's preferences regarding physical characteristics of a product, such as taste? The three lines of research presented in this symposium seek to answer these questions, which share the same underlying mechanism: consumers' defense-motivated strategies. This symposium provides a novel view and a deeper understanding of fundamental issues in the consumer research field, such as memory preservation, taste formation and choice. On a methodological note, the symposium also bridges between the "Behavioral" and "Empirical modeling" data analysis methodologies used in marketing research by showing how Bayesian techniques can be successfully used to analyze experimental data (paper 2).

As mentioned above, the three papers presented here are focused on defense-motivated strategies developed by consumers. These defense-motivated strategies usually serve a self-preserving goal. People may engage in attitude change to justify their choices (Brehm 1956), or may prefer to distort their memories in order to feel better about their past behavior (Mather, Shafir and Johnson 2000, 2003). Support for this contention is found in studies of cognitive dissonance (Festinger 1957) and the motivated reasoning framework (Kunda 1990), which proposes that motivation affects people's reasoning through their reliance on a biased set of cognitive processes (Chernev 2001). An extensive body of literature has analyzed these defense-motivated strategies and their effects on information processing (Russo, Medvec and Meloy 1996), choice (Chernev 2001, Kivetz and Simonson 2000), repeated purchase (Sen and Johnson 1997), information search (Hoch and Ha 1986, Klayman and Ha 1987) and memory distortions (Mather, Shafir and Johnson, 2000, 2003), to name a few. However, as pointed out above, there are important questions that remain unanswered, some of which will be addressed in this symposium.

In paper 1, Kim, Zauberman and Ratner test the *memory protection through acquisition* hypothesis, a novel view on how consumers try to preserve their memories for special occasions in their lives. This hypothesis proposes that people seek to obtain products that they think will help them remember a special experience, even though they would forego these same items in the context of a non-special experience. Results from three studies suggest that individuals prefer products that are uniquely associated with a special memory rather than those that would not be associated with the memory or associated with both a special memory and a memory that is less special. In addition, consumers' desire for these memory pointer products is enhanced when people are led to believe that their memories are weaker.

Paper 2 (Zemborain, Johar and Ansari) analyzes the psychological processes governing choice-supportive distortions, or the defense-motivated mechanisms used by consumers to justify their choices. Unlike previous research based on dissonance theory (Festinger 1957) which focused on how people tend to justify their choices by increasing their liking or ratings to favor their chosen products (i.e., the spread of alternatives effect), in this paper the authors analyze how choice may shift consumers' preferences at the

product feature level. Results from the first experiment show that after making a choice, people prefer positive features of their chosen products and negative features of their not chosen options, presumably to justify their choices. Previous research showed that people may distort their memories for past options in a choice supportive fashion; such that positive features are attributed to chosen products and negative features are attributed to forgone alternatives (Mather, Shafir and Johnson 2000, 2003). These findings, together with results from study 1, led the authors to hypothesize that based on these attributions people would change the attribute weights such that positive features attributed to chosen products and negative features attributed to forgone alternatives would become more important. Furthermore, if these changes in attribute weights implied a choice-defensive strategy, then such modifications should take place only when individuals were highly confident about their feature source attributions. Results from study 2 support these predictions. The moderating effect of confidence in the individuals' attributions suggests that these changes in attribute importance weights are indeed a defense-motivated strategy used by consumers to justify their choices.

Paper 3 (Riis and McClure) seeks to answer the question regarding whether taste change can be facilitated by motivation. Specifically, this research explores the possibility that consumers' concerns about health may lead to an actual change in the liking of a product. Results from the first experiment show that regular Coke drinkers who are highly concerned with health-related issues (i.e., motivated) expect to improve their liking for Diet Coke if asked to drink this soda during a hypothetical two week consumption period whereas regular Coke drinkers who are not concerned with health-related issues (i.e., unmotivated) expect to like Diet Coke even less when exposed to the same hypothetical situation. In study 2, heavy drinkers of regular cola refrained from drinking that soda for two weeks, consuming instead daily servings of Diet Coke. Results from a blind test showed a marked increase in liking for Diet Coke for all participants. However, in non-blind tests only participants who had a high concern for the health consequences of sugared soda consumption reported increased liking for Diet Coke. Furthermore, this group reported a greater increase in intention to purchase Diet Coke in the future.

Taken together, the three papers investigate how people develop defense-motivated strategies in fundamental aspects of their behavior, such as memory preservation, taste formation and choice. This symposium offers a novel and comprehensive view of the topic, and contributes to the field delivering a deeper understanding of this phenomenon. The symposium also benefits from the participation of Professor Fishbach as discussant. Her expertise on motivation and self-control ensures rich conclusions and suggestions for future research based on the work presented here.

The three papers contribute to a research area that is relevant to ACR members interested in memory processes, motivation, intertemporal choice, preference formation, taste change, information processing, and judgment and decision making. Regarding the organization of the symposium, we plan to make 15 minutes presentations, with about 5 minutes of questions following each presentation and a 15-minute discussion at the end of the session (total: 75 minutes).

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EXTENDED ABSTRACTS

"Memory Pointers: Strategic Memory Protection through Acquisition of Recall Cues"

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In this work, we focus on individuals' desire to engage in what we call strategic memory protection; that is, behaviors that people think will allow them to protect their ability to derive utility from memory. We focus here on a particular type of memory protection and propose the memory protection through acquisition hypothesis, where people seek to obtain products that they think will later help them remember an earlier special experience, even though they would forego these same items in the context of a non-special experience.

Study 1 examines this hypothesis in a situation where a special experience is to be followed by a second experience that could interfere with individuals' ability to retrieve the initial experience. We ask all respondents to imagine having a special vacation trip to a San Diego resort and ask half of them to imagine that they will be returning to the same city for a business trip soon afterward, staying in a different hotel. Consistent with our memory protection through cue acquisition hypothesis, among respondents who expected an upcoming business trip to the same city, participants were more interested in the resort-specific cue (i.e., the bungalow magnet; likelihood of buying on an 11-point scale, $M=8.57$) than in the generic cue (i.e., the San Diego magnet; $M=6.87$). However, in the

vacation-only condition, participants reported a similar likelihood to purchase the magnet when offered the resort-specific magnet vs. the more generic California magnet ($M_s=8.44$ and 8.97 , respectively).

Study 2 further tests whether people seek to obtain physical objects that they think will later help them to remember an earlier special experience (i.e., a memory pointer), even though they would forego these same items in the context of a non-special experience. All respondents imagined going to a resort in Cancun, Mexico with their significant other. Those in the special experience condition imagined that the weather was excellent and they had a wonderful vacation. Those in the non-special condition imagined that a huge storm passed through the region and they had an unpleasant vacation. Participants were asked to indicate their preference to buy either a traditional Mayan wooden sculpture (i.e., a product that would be thematically closely associated with the vacation) or a limited version of a music CD of their favorite band (i.e., a product that would not be closely associated thematically with the vacation) on an 11-point scale. Results show that participants' preference for the sculpture was higher with the special experience ($M=6.36$) than with the non-special experience ($M=3.58$), but preference for the music CD did not differ significantly across experiences ($M=7.04$ with special experience and $M=6.02$ with non-special experience). In addition, when imagining that they lost the sculpture after having purchased it, they were upset more after the special ($M=8.05$) than after the non-special resort experience ($M=6.10$), consistent with the notion that they wanted it to serve as a recall cue only after the special experience. However, when they imagined having lost the music CD, no difference emerged between those considering special vs. non-special experiences. This study also examines whether they would be interested in replacing the lost sculpture if they found an identical product at a local store. Content analysis shows that whereas people perceive the item purchased as the resort to be a good memory pointer, they perceive that a replacement item from a local store would not be.

Study 3 seeks more direct evidence about the extent to which being able to retrieve special memories plays a causal role in guiding consumers' behaviors. It has been shown in psychology and consumer research that experienced ease or difficulty (compared to content) of tasks affects evaluations and judgments in decision making (Schwarz 1998; Wänke, Böhner, and Jurkowsitch 1997). In the context of the current research, we expected that participants who were required to recall many past experiences that are particularly special (e.g., 10 experiences) would experience recall difficulty (and lack of processing fluency) and therefore prefer a product that might serve as a cue to facilitate recall following a special experience. However, those who were required to recall only a few special experiences (e.g., 2 experiences) would experience ease in the recall task (and greater processing fluency), and this would lead to a reduced perceived need for a memory pointer product. Results show that indeed participants who are manipulated to believe that recalling past experiences is difficult show stronger preference for a memory pointer product following a special than non-special experience. Specifically, participants who were induced to think that recalling past experiences is difficult (i.e., recall 10 experiences) showed higher preference for a product closely associated with the experience when the experience was special ($M=5.51$) versus non-special experience ($M=2.95$). However, participants who were manipulated to think that recalling past experiences is easy (i.e., recall 2 experiences) did not show any difference in preference for this product that was closely associated with the experience across the special vs. non-special experiences ($M_s=4.05$ and 3.50).

In conclusion, we show that individuals prefer products that are uniquely associated with a special memory rather than those that would not be associated with the memory or associated with both a special memory and a memory that is less special. We further show that individuals' desire for these memory pointer products is enhanced when they are led to believe that their memories are weaker. These results all confirm our memory protection through acquisition hypothesis. Whereas research in cognitive psychology examines the actual impact of exposure to new information on one's ability to remember past experiences (e.g., retroactive interference), our research program examines people's lay theories about the extent to which they might experience retroactive interference. Our work demonstrates the behaviors that people engage in to facilitate the retrieval of those past experiences that they most want to remember without interference from other experiences.

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"Choice-Motivated Changes in Consumers' Preferences"

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It has been shown that people may strategically distort their memories and evaluations about past choices in order to justify them (Tetlock, Stitka and Boettger 1989; Mather, Shafir and Johnson, 2000, 2003; Festinger 1957). Although this phenomenon has been reported extensively in the literature, little research analyzed the psychological process governing these choice-supportive distortions, which is the focus of this research.

If after making a choice people develop a strategy to support their decision, they should show a higher post-choice preference for positive attributes of the chosen products (i.e., reasons to choose) and for negative attributes of the not chosen products (i.e., reasons to reject). Results from study 1 confirmed this assumption.

In study 1 we asked 39 participants to imagine that they were planning to buy a house and they narrowed their choice down to two houses. Then, the participants were presented with two options, which were described in terms of eight features (four positive features and four negative features) each. After they made their choices, participants went through a filler task and then were exposed to a list of 30 house attributes, of which sixteen corresponded to the features of the houses they chose from, and fourteen were new. Beside the attributes were two columns, one labeled 'Check your 15 "must be positive" features in this column' and the other one labeled 'Check your 15 "can be negative" features in this column'. The participants' task was to describe their preferred house using exactly 15 positive and 15 negative features. They were asked to place a check mark in the "Must be positive" column beside each of the 15 corresponding features, and in the "Can be negative" feature column beside each of the 15 corresponding features. A test of proportions showed that people tended to choose to be positive those attributes that were positive and belonged to their chosen houses more than those that were positive and belonged to their not chosen options (positive-chosen=58% vs. positive-not chosen=46%,

$p < .05$). Also, participants tended to pick to be positive those attributes that were negative and belonged to their not chosen houses more than those that were negative and belonged to their chosen alternatives (negative-not chosen=51% vs. negative-chosen=39%, $p < .05$).

Although results were consistent with our predictions, they did not tell much about the psychological process governing this choice-defensive mechanism. Results from study 1 and previous research showing that people may distort their memories for past options in a choice-supportive fashion (Mather, Shafir and Johnson 2000, 2003), led us to hypothesized that based on these distorted memories people would change the attribute importance weights such that positive features attributed to chosen products and negative features attributed to forgone alternatives would become more important. Furthermore, if these changes in attribute weights implied a choice-defensive strategy, then such modifications should take place only when individuals were highly confident about their feature attributions. Results from study 2 supported these predictions. Upon arrival, participants were asked to rate the importance of thirty attributes for each of three distinct product categories (houses, restaurants and used cars). After a filler task, the students were asked to make binary choices in those same three categories. Each option was described in terms of four positive and four negative features, all of which corresponded to the attributes rated before. After an unrelated questionnaire; for each product category participants were presented with a list of thirty two features (the sixteen features that belonged to the choice options and sixteen new features) and were asked to indicate whether each feature belonged to their chosen product, to their not chosen product, or if it was new. They also indicated how confident they were in their attributions, on a seven-point scale anchored at 1 (Not at all confident) and 7 (Extremely confident). After indicating the sources of each feature, participants were asked to recall which product they chose in each category (we only report the results for the 126 students who correctly remembered all three choices). Following another filler, students were asked to rate again the importance of the attributes for each of the three categories. Finally, and after another unrelated questionnaire, participants completed the same choice task as in experiment 1, for each of the three categories; and rated the valence of each of the product features for which they reported the source.

To tap on the psychological processes driving consumers' choice-defensive strategies, we analyzed the data in two different ways. Our first main dependent variable was the difference between participants' post and pre-choice attribute importance ratings. To properly account for the repeated measures design and individuals' heterogeneity, we used a hierarchical Bayesian linear regression of the main DV on participants' reported feature source (i.e., chosen product, not chosen product, or new feature), participants' reported confidence in such source attributions, and participants' reported feature valence (i.e., positive or negative). As expected, we found a significant three-way interaction among the independent variables, such that attribute importance ratings were increased for positive features attributed to chosen products and for negative features attributed to not chosen products, only when participants' confidence in their feature source attributions was high.

Our second dependent variable was the participants' probability of choosing a particular attribute to be positive in their preferred product. We ran a hierarchical Bayesian probit in which we modeled participants' utility as a function of the change in the attribute importance ratings, the participants' reported feature source and the participants' reported feature valence. Results showed that individuals were more likely to choose an attribute to be positive if the attribute importance weight increased after choice, if the attribute

corresponded to a positive feature attributed to a chosen product or if the attribute corresponded to a negative feature attributed to a not chosen alternative.

Our results support our theorizing regarding the psychological processes governing consumers' choice-supportive distortions. Interestingly, consumers' preferences seemed to shift toward their choices, suggesting that these distortions may go beyond choice justification and have an effect in shaping consumers' preferences.

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"Motivated Taste Change for Diet Coke"

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While a number of studies have shown that changes in preference can occur with changes in consumption and exposure (Rozin, 1999), the question of whether taste change can be facilitated by motivation is more controversial (Loewenstein & Angner, 2003). Evidence for motivated taste change comes mostly from studies of dissonance, whereby people are thought to reduce negative feelings of disappointment by shifting their preferences to objects that happen to be in their possession (Brehm, 1956). In the present work, we investigate taste change that is motivated by concerns about health, and find that such concerns can influence awareness of taste change, and that this awareness has implications for future choice intentions.

The particular source of motivation that we investigate is the widespread concern about the health effects of sugared soda consumption. Obesity is considered by some public health experts to be the second leading cause of preventable death in America, and at least a third of American adults are attempting to lose weight (Kruger et al., 2004). Sugared sodas are thought to be one of the major contributors to the obesity epidemic, and diet sodas are rapidly gaining market share from sugared sodas.

Interestingly, many people claim that not only do they prefer diet soda because it is healthier, but that they also prefer the taste. In a pilot study with participants drawn from a paid, nationally representative panel, we found that 85% of the 120 frequent Diet Coke drinkers in the sample said that Diet Coke tasted better than regular Coke. More impressively, however, 70% of those who preferred the taste of Diet Coke said they used to prefer the taste of regular Coke. They also cited concerns about health and fitness, and not taste, as their original reason for switching to Diet Coke. These data are consistent with the possibility that concerns about health (i.e., motivation) led to an actual change in the liking of a product.

In the present studies we sought to test this possibility. In Study 1 we examined whether or not motivation is related to expectation of taste change. We hypothesized that it would be. People tend to be optimistic in their estimates of the likelihood of good outcomes (Weinstein, 1980). Since health-motivated people would be more likely to consider a taste improvement for a healthy product to be a good outcome, they should thus be more likely to expect this

outcome to occur. This is indeed what we found. We asked 58 regular Coke drinkers (drawn from the same panel as the pilot study) to indicate their agreement with the statement, "my consumption of sugared soda is having a bad effect on my health and fitness". We considered people who agreed with the statement to be "motivated" to change their taste, and people who disagreed with the statement to be "unmotivated". Both groups were similar in their soda consumption and in their self reported liking of Coke and Diet Coke. All participants were asked to imagine that they were to drink Diet Coke daily for two weeks. The motivated people predicted that their liking of Diet Coke would improve during such a trial, while the unmotivated people predicted that they would come to like Diet Coke even less.

In Study 2 we actually examine taste change by exposing both motivated and unmotivated Coke drinkers to Diet Coke for two weeks. Based on previous mere exposure studies (e.g., Bertino et al., 1982, 1986), we expected blind taste tests to reveal increased liking of Diet Coke in both groups. In branded tests, however, we expected the groups to differ, with the motivated participants being more likely to report increased liking.

Undergraduate participants were selected based on a pre-screening survey for heavy consumption of Coca Cola (mean of 3.8 cans per week) and for their level of concern about the effects of sugared soda on their health. Half of the participants were highly concerned (i.e., "motivated") and half were minimally concerned (i.e., "unmotivated"). The two groups did not differ in their soda consumption habits. Both groups were given a two week supply of Diet Coke, with the instruction to drink one can each day, and to refrain from drinking sugared soda. (Compliance, reported anonymously, was very high.) Participants were not asked about their expectations of taste change for fear that this would influence their subsequent reporting. Two kinds of taste tests were given, both at the beginning and end of the two week consumption period. In blind tests, participants drank several colas in clear, unlabelled plastic cups, and then rated the taste of each one on a 9 point scale (anchored at "dislike very much" and "like very much"). In "branded" taste tests, participants opened a can of Diet Coke, poured approximately one ounce into a clear plastic cup, tasted it, and then rated the taste using the same 9 point scale.

Both high-concern and low-concern participants revealed a large (4/5ths of a standard deviation) increase in liking of Diet Coke following the two-week consumption period. However, with the branded test, only the high concern participants revealed an increase in liking. Furthermore, the high concern subjects reported a greater increase in intention to purchase Diet Coke in the future. These results suggest that motivation for taste change may be independent of its actual occurrence, but that it may be required for awareness of its occurrence, and, importantly, for the intent to act on that taste change. The results do not isolate expectation as the mechanism of the motivational effect, although the results of Study 1 are consistent with this possibility.

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